BEFORE THE WATER POLLUTION CONTROL
ADVISORY COUNCIL (WPCAC)

TRANSCRIPT OF PROCEEDINGS

Heard at Room 111, Metcalf Building
1520 East Sixth Avenue
Helena, Montana
February 17, 2012
10:00 a.m.

CHAIRMAN TREVOR SELCH; MEMBERS EARL SALLEY, STEVIE NEUMAN, KAREN BUCKLIN-SANCHEZ, KATHLEEN WILLIAMS, MICHAEL WENDLAND;
and MITCHELL LEU
(By telephone)

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WHEREUPON, the following proceedings were had:

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CHAIRMAN SELCH: I'll call this meeting to order at 10:00. It looks like we've got a quorum with five of us here and Mitchell is on the phone. I apologize for not being here last time. I got a bad case of something at the time, but thankfully Dude covered for me on the first day there. Thanks for everyone that came. I know on the agenda today we just have some briefing items, and it's really great to have people in person. I think it's good to be able to see them and question. I appreciate for Mitchell calling in as well.

So I guess at this point, looking at the agenda, does anyone have anything to change on that or add?

(No response)

CHAIRMAN SELCH: Hearing not, is there a motion to approve the agenda.

MR. SALLEY: So moved.

MS. WILLIAMS: Second.

CHAIRMAN SELCH: The next item is the approval of our minutes, and we have actually two

sets of minutes we need to approve because of some modifications. The first one was back on November 3rd meetings, and there was a couple of things that, Kathleen, you wanted in there. I read through them, the additions that were put in there. Do you think that's adequate?

MS. WILLIAMS: I wanted to thank the staff for going back and doing that.

CHAIRMAN SELCH: Karen, you had a question about depth as well, and I noticed they've added some numbers in there. Was that what you were looking for? It's on the third page under fracking there.

MS. BUCKLIN-SANCHEZ: Yes.

CHAIRMAN SELCH: I just remember in the notes, you had a question about the depth of the -- I don't know if that was added later on or not.

MS. CRIDER: Mitchell clarified it for me via email. So what you see in there is his clarification.

CHAIRMAN SELCH: Okay. Does anyone have any additional comments for the November 3rd meeting minutes?

(No response)

CHAIRMAN SELCH: Hearing none --

MR. WENDLAND: Move we accept the November meeting minutes as --

MS. BUCKLIN-SANCHEZ: Second.

CHAIRMAN SELCH: It's been moved. The January 6th minutes, does anyone have any comments or edits? That was a fairly brief meeting. It sounds like we moved back one of meeting dates one week in there, and everything else looked like it was good to go. Motion to approve those minutes.

MS. WILLIAMS: So moved.

MR. SALLEY: Second.

CHAIRMAN SELCH: Excellent. So that takes us into our briefing items for today.

MS. WILLIAMS: Do we need to vote?

CHAIRMAN SELCH: Sure.

(Response)

CHAIRMAN SELCH: Opposed.

(No response)

CHAIRMAN SELCH: Our first item here is nutrient strategy, and we have Mike Suplee and George Mathieus presenting that.

MR. MATHIEUS: Good morning. So for those of you who don't know me, I'm George Mathieus, I'm the Administrator of the Planning and Prevention Assistance Division here at DEQ.

And just a qualifier, you guys can't ask me any difficult questions because I'm a high level manager and probably can't answer them.

What we're going to do today is just kind of give you a briefing. I'm just providing an introduction just showing everybody how all those pieces and parts are tied together. So just briefly, the Department has been working on numeric nutrient water quality standards for over ten years, and the key to these standards really lies in the implementation and the ability to implement those standards.

The neat thing about this effort is I view it as it's served as a catalyst for creating and designing many other efforts to reduce nutrients in the state of Montana, and I like to call it our nutrient reduction strategy. And I just wanted to touch on a couple of key points, keeping them pretty general.

But the Department has led or supported several efforts since we've been working on these nutrient standards. For example, legislation, we've had several pieces of legislation that we've either supported or led that effort, and just to name them off right quick. Senate Bill 200 came

out of the 2009 session. That was a dishwashing detergent phosphorus ban that came out of Missoula.

Senate Bill 95 was part of our nutrient standards implementation piece, which allowed the Department to get a variance against those standards so that we could implement them across the state in an effective and staged manner.

House Bill 52 was last session. That was our water reuse bill. That basically gives us the authority to allow municipalities to reuse their wastewater for different things like fire suppression, irrigation, dust abatement, things like that, and all it's based on a minimal treatment requirement.

House Bill 28 was a bill that came out of the Water Policy Interim Committee. Our Department supported that one pretty heavily. It basically was the mixing zone bill that no longer allows for septic mixing zones to cross over to adjacent landowners without an easement.

The issue was that these subdivisions were going in, and depending on a variety of factors, whether the mixing zone was 100 feet or 500 feet, they were crossing over into other

property boundaries, thus limiting the adjacent property owner's ability to put in a well. So that's just kind of a high level overview of that piece of legislation.

We also had Senate Bill 267, which was sort of our TMDL bill. The TMDL's are all tied to the -- That just basically gave us the ability to fulfill the negotiations with the plaintiffs that we had ongoing last year.

Finally, Senate Bill 367 came out of Senate Bill 95, and that was just after two years of work with the Nutrient Work Group, that's where we landed following Senate Bill 95, and trying to more effectively implement the variance process.

So those are just a few from the legislative perspective. Other things we've done as a Department is I think we've greatly increased our public process with more involved stakeholder groups, the Nutrient Work Group. We now routinely as a Department meet with the League of Cities and Towns. Our permitting programs are meeting with their permittees up front and throughout the process. A lot of these have increased the time to get things done, but I think in the long run, it's been better for everybody. It makes things

more effective, and folks know what's going on.

On the nonpoint source side, we continue to have a pretty strong education and outreach program. Just a couple of examples. We're funding -- Right now we're funding an individual to go out and work with and provide assistance to producers on nutrient BMP's for feeding operations.

We have a Septic Work Group in the Department that is looking at septic issues as part of the nonpoint source piece, how can we make reductions to nutrient loadings from septic waste.

And currently, the neat thing about that is currently the Department is working with the City of Missoula and the City of Helena at possibly developing this concept of nutrient trading; and in these cases, it's probably more appropriate to call it offsetting, and that is --

Just a real general example would be if a city chooses to go in and hook up to an existing system, let's say, and we can do an analysis and say that system is currently introducing "X" pounds of nutrients into the watershed, and if the city brings this online, they're going to reduce that overall load to the watershed, but they also

are going to increase their own load, recognizing that, but it's a net benefit across the watershed. So we do have the ability to offset and allow them to expand, but it's a greater good for the watershed. So conceptionally that's how that is looking to play out.

On the other side of the division I manage is the Energy Program, the State Energy Program, and we have had the ability through stimulus funds to fund a couple of projects in the last couple years.

And one in particular I'd like just to point out is a small company called ACCT, and they have built an octagonal greenhouse on Stoltz Land and Lumber's property, and basically what they're doing is they're growing algae using waste chips from the lumberyard there at Stoltz, and they're growing algae, and they are harvesting it to create mainly biochar for fertilizer, but there's biodiesel possibilities.

And there is also -- this is sort of my "pie in the sky" -- but being able to maybe someday hook on to wastewater treatment plants, and that technology is there, and grow algae, instead of discharging it into the stream. I

think the biggest issue with that right now statewide and nationally is one of scale, but a lot of that stuff is out there.

So the whole point of this today is we're planning to brief the Board of Environmental Review in March, and our plan is to not only give the series of briefings that are following me that is going to have much more detail than I've provided, but also just to kind of show how this is an umbrella, and all these little pieces of rulemaking and legislation, all that, really serve a common purpose. So that's really the point I wanted to make today.

With that, I'll just leave it up to the folks that can go into more detail on these issues, so thank you.

CHAIRMAN SELCH: Going in order, Mike is up next.

MR. SUPLEE: Good morning, everybody. So what I want to speak to you this morning about is the work we've been doing for the development of numeric nutrient standards. I believe the last time I spoke to this group was in August of last year, I believe. And I kind of briefly went over some of the activities that have been going on for

the nutrient criteria development, which is a piece of this larger puzzle that George mentioned.

So today, because there is a good chance we'll be going to rulemaking or hoping to go to rulemaking sometime later this year, this is sort of an initial chance to give some information to you about how we got here, what the criteria looked like, how they were developed, and some of the other pieces that go along with this. And if you have any questions as I go along, feel free to ask.

This is an outline of what we're going to talk about today. I just want to go over the timeline that we've been working on in terms of what's been done over the years for criteria development. I want to go over why we would want to have numeric nutrient criteria as opposed to the types of regulations we currently have on the books; the process of deriving criteria for the different water bodies that we're talking about, I'll go into those very briefly.

I want to touch on the trends in the Clark Fork River case, because that's one of our best case studies of nutrient standards and how they operate, and they've been in place for about

13, 14 years or longer now, and we have some pretty good indications of how that's going.

Implementation, which has been a sticky part of nutrient standards from the get-go, and so I'll go into a little more detail on the two Senate Bills that George mentioned. The Nutrient Work Group, I'll touch on. The draft circulars and rules, which would actually be the rule pieces that you would look at at some point down the road here, not today necessarily, but eventually. The United State's EPA views on our approach, and finally what we're kind of projecting as our timeline for nutrient criteria adoption, which has direct relevance to you.

So here is the brief and very much incomplete overview of what has been done for nutrient standards over the years. So probably the biggest thing earlier on was in the 1990s. We had the development of the criteria for the Clark Fork River, and an accompaniment with that was voluntary nutrient reduction program that went in place to attempt to meet those targets. So that was a voluntary program that kicked in in 1998.

In the years preceding that, there was a fair amount of work on the development of criteria

and the targets for the river itself to prevent problems related to excess nutrients.

In 2001, the Department here, we began working on criteria development for all waters of the state. In 2002, the Clark Fork River targets were then adopted as standards for the river itself, so those have been standards for about ten years now, and all those rules were passed before this body at that time, before this council.

Then for about the next several years, we worked a lot on the technical elements of the criteria: Figuring out what the criteria should be, and establishing a system for where the criteria would be different in different places, etc.

In 2009, at that point we had a pretty good idea what the criteria would look like. Many of them looked like they were going to get pretty stringent and difficult to meet, and that is when we began to really focus in on the implementation of components.

In 2009, Senate Bill 95 was adopted. I'll go in more detail about that. But essentially it allowed variances from the standards so they could be met over a longer time

period than just one permit cycle.

Then in 2011, due to difficulties on meeting this case-by-case type approach which the original Senate Bill had provided for, there was more legislative action, and we refined that process -- the Nutrient Work Group was heavily involved with this -- and it allows for general variances. I'll talk about those later.

So that's kind of the general timeline of what's happened with nutrients and nutrient standards in the state.

So now I want to talk a little bit about why we would want numeric nutrient criteria. So we do have criteria already on the books that address factors that are affected by excess nutrients, and they're narrative standards. They're known as the "free-froms," and they have things on the books such as no nuisance aquatic life to due to human actions, that would be a standard that we have.

And the intent of these narrative standards is in general fairly clear. Their application has been inconsistent. So that's been one of the issues with narrative standards.

So nitrogen and phosphorus, which is

what we're actually talking about when we talk about nutrients, they also directly or indirectly impact other existing water quality standards, both numeric and narrative. So for example, they impact dissolved oxygen, pH, excess algal growth, etc. We'll be looking at some of that in a little bit better detail.

So it became apparent to the Department, and there has been also some pressure nationally on this from EPA, to address the root cause via nutrient standards as opposed to the indirect effect, which is what we have standards for now. It also would allow for more consistent permitting and TMDL application because what the standards would be are clear for everybody who is working with them.

So when we're talking about nutrient standards, what we're generally talking about in terms of an effect in the state of Montana most commonly -- it does vary from place to place -- but is some form or another of excess algal or plant growth, which leads to certain types of problems in the rivers and streams, and this is a couple of photos of the kind of problems that excess nutrients can lead to.

So this chart, I want to take a minute and kind of go through here, because this gets at how all this stuff ties together. So because the nutrients most commonly manifest as excess algal growth -- and in our rivers and streams, that's more often than not algal growth attached to the stream bottom -- we have a means for measuring how much algae actually grows on the bottom, and to quantify it, and it's usually measured as the amount of chlorophyll per square meter on the bottom. And this chart shows you how different levels of that algal growth affect different types of beneficial uses, and things that the Department is charged to protect.

So for example, at the top, what we have found is that the recreational beneficial use, which our streams are protected for, basically algal levels up to about 150 are considered acceptable by the public, but beyond that they're not.

Bringing down here to aquatic life, what we see is that with the aquatic insect community, at low algae levels, you typically see the domination of water bodies by the types of insects that we associate with fly fishing -- stone flies,

may flies, etc.

Around this same algae level, around 150, we usually see a shift away from those, although they're still mixed with other types of insects. And then at the very high algae levels, the rivers and streams tend to be dominated by scuds, or midges, or worms, or other types of more tolerant organisms. So there is kind of a change point right in this area. Typically at these low algae levels we don't see any dissolved oxygen problems with our streams, so the dissolved oxygen is high enough to support pretty much all aquatic life.

In this range here, we have documented cases and studies we have done in the state that show that there are in fact DO problems that occur somewhere around 150; and then when you get out to those very high levels, there is certainly dissolved oxygen problems which affect both fisheries and aquatic insects and other organisms.

In terms of -- When you get into the literature on what affects salmonid type fisheries, what we typically see is that if you have extremely low algae levels, and very low nutrients, usually adding some nutrients will

usually increase salmonid growth and survival up to a point.

So in fact, on the Kootenai River on the Idaho border with Montana, they're actually adding nutrients, because Libby Dam has reduced the amount of nutrients in the Koutenai River so slow, because they settle out, that the fishery has collapsed since the early 1970s when the dam went in, so they've actually added small amounts of nutrients and are boosting the fishery there. So they're operating down in this range.

Now, once you get into the higher levels of algal growth from more nutrients, the literature on this topic in the scientific literature were mixed, but essentially salmonid growth starts to get high, or good, or possibly diminished, but there is some kind of a general shift in this area; and when you're out at the very high levels, salmonid growth is impacted due to changes in their diet because the types of food available aren't as suitable for them, or dissolved oxygen problems, or combinations thereof.

So we use this to kind of demonstrate what it is we're protecting because the nutrients

link directly to the amount of benthic algal growth you'll see on the stream level, and they in turn have effects on the various aquatic life and beneficial uses that we're supposed to protect.

So let me talk a little bit about how we derive nutrient criteria, because this gets into the stuff that ultimately sets the standards. We basically are looking at three parts. So first we had to identify an appropriate geographic zone, because nutrients vary nationally across the state, and we wouldn't expect them to be the same everywhere just because of climate, and natural geology, background, etc.

We need to have an understanding of the cause/effect relationship between the nutrients and those uses, like I just mentioned. What's the relation between nutrients, algae, and DO? We have studies like that.

And further, we look at water quality data from reference sites, and they give us a benchmark for what the unimpacted streams of the state look like in terms of their nutrient concentrations.

So in terms of a system to define what nutrients will be different and have different

criteria, we did a fair amount of analysis back in the early 2000's, and decided, based on looking at a couple of different systems, that ecoregions were the best way to go. They basically defined different areas where different concentrations are naturally changing, and we can use those to define what the expectations are.

The two biggest breakdowns is eastern and western Montana -- which is pretty obvious -- mountainous ecoregions, plains ecoregions, and some of these transitional ones right along the Rocky Mountain Front. And then within these zones, there is different areas. Like this dark green area is the middle Rockies. It for example can have nutrient standards that may be slightly different that the northern Rockies, which is the green up in the upper left side. So this is the zoning system the standards will be based on.

So as I mentioned, having an understanding of the relationship between the cause/effect was key, and there was quite a few regional studies that we've either carried out here at the DEQ, or we have found in literature and are using to understand the concentration and dose relationships between nutrients and aquatic

life, DO, pH, etc., and these little stars kind of show you where some of these are.

In addition, there are many, many, many other studies nationally and globally that we can use to help support the information that's been worked out in these more localized studies.

And reference streams. So reference streams are things that we've gone out and built a network of 185 sites now. We've been collecting data on reference streams intensely for the last 12 years, and more sporadically for the last 20 or more, and we have them in both eastern and western Montana, and they represent our best understanding of what nutrients would look like in an unimpacted state. So these give us a piece of information that helps us to understand what the benchmark ought to be.

I'll show you how now -- I think the next slide. This kind of shows you how we tie these two pieces of information together. So usually when you get a lot of data back from a whole bunch of reference sites, let's say in a particular zone, let's say the middle Rockies, you'll see a distribution that looks like this. So they'll have some kind of a central tendency

here, and these concentrations represent -- this concentration here represents kind of a typical or mid range concentration for the reference sites from that area.

Now, then what we do is we take those dose response studies, and we compare what they would look like to these. In general, just based on theory, you would expect that concentrations from a dose response study that are showing DO problems, or impacts to aquatic insects, are going to be fairly high, and they're going to probably be higher than the typical one you can see in a reference site.

But by definition, these are not impacted, and this is actually in fact what we see. Typically when we take those dose response studies, and we get back a concentration, let's say 30 micrograms total phosphorus per liter, and we compare it to the regional reference sites, they'll typically be out in this range. So we use these two pieces of information to cross check one another, does it make sense.

And there are in fact some ecoregions where there is naturally elevated levels of phosphorus just based on geology, and we can

account for that as well, and make sure that the criteria are set appropriately in those cases.

So what we're going to have coming soon -- and this will not be an action that you'll need to take, but it will be a document available to you -- will be an addendum to the report I put out in 2008, which will go through ecoregion by ecoregion in a presentation format like this.

So there will be a page showing the map of the state, the ecoregion in question, the recommended criteria for that ecoregion, some descriptive statistics, and a quick and easy-to-use table for the reference sites from that ecoregion, so you can do a comparison between what the criteria are, and what the natural background looks like for the stream. Then on the following page there will be about half a page explanation of how we came to derive the criteria.

So this will be the technical background that you can refer to if there is questions about how these criteria were developed or what the basis of them is. This should be ready. We're going to put some of this out in another week in an incomplete form, because the Nutrient Work Group has been asking to see it; and then after

that, we'll get a completed one done in a month or so.

Now, we haven't worked on only wadeable streams. We've also worked on large rivers. We ran into a different type of issue when it came to deriving nutrient standards for the large rivers. The issue was that first there is no reference sites to use, so that took away a very important piece of the information that we usually use to help calibrate, and cross check, and make sure the criteria makes sense.

They're also much deeper, faster, have different light regimes within the water column than the wadeable shallow streams, and changes a lot the way nutrients manifest their effects. And so looking at our various options, we settled on the use of mechanistic water quality models.

So with these models, once they're built, calibrated, and validated, you can simulate all the things that we were talking about earlier in terms of things that are impacted by excess nutrients -- dissolved oxygen, pH, nutrient benthic algal growth, etc., and so that's the approach we took.

Our first effort was on the Yellowstone.

Now, all these remaining large rivers will be done case-by-case going forward. We may get a point where we understand the models and the modeling processes, and may be able to speed it up; but at this point we're still handling them on a case-by-case.

So our first one was on the Lower Yellowstone River, and we carried out this study between 2007 and 2008, and then we finally finished the model, and it just came back from peer review the other day, and so that technical report should be finalized in the next couple months. And it was carried out down there in the lower part of the river.

So this was a case where we were able to develop criteria for a 145 mile long stretch of a large river of the state. This is kind of the approach using the QUAL2K model that we'll be doing going forward for other large rivers.

So this summer, we're planning to tackle the remaining part of the Yellowstone River from Billings back upstream to Livingston. From our point of view at that point, our criteria development for the Yellowstone River would be complete.

So a table similar to this is what you'll actually end up seeing in the circular that we'll talk about later that you would be looking at and taking action on.

So it will be providing different ecoregions, because that's how we're going to break out the criteria; their period of application, which I haven't mentioned up to now, but they are seasonal criteria, because the effects that we're concerned about do not manifest year around. Basically in the summer when it is warm, the water levels are shallow, the algae growth is maximal. That's when we see the DO problems, the pH, the nuisance algae, etc.

And so the criteria are designed to target that time period; other times of the year other types of nutrient standards would be in place that we already have on the books, for example, the human health standard for nitrate, etc. And so where we're at right now is we're working on, and developing, finalizing these concentrations for these ecoregions, and then we have these two reaches of the Yellowstone River finished. And these might shift around a little bit, but they're pretty close to what we'll finish

with based on that modeling approach.

Lakes. We are also going to be and have been working on lakes because nutrients do impact lakes. Common impacts are loss of water clarity, and that leads to reductions in recreational value and property value. Increased frequency of noxious algae blooms is probably the most common problems. You see that at Canyon Ferry almost every summer. That in turn leads to sometimes changes in fish species composition.

Sometimes we'll see a shift from macrophytes, which are aquatic plants, vascular can be replaced instead by dense populations of phytoplankton. Sometimes they'll lead to taste and odor problems in source waters where there is drinking water supplied.

So these are the kinds of problems we see in lakes. We're further behind on lakes in terms of criteria development because they're under development. We have finished our data collection; we wrapped that up around 2008. We're planning to tackle our first large reservoir a year from now or perhaps two years from now, again taking a modeling approach.

But at the time that we bring criteria

to you for adoption, presuming that that all goes as planned here in the spring, we won't have any lake or reservoir criteria recommendations at this time because they're just not finished yet.

The one exception to that might be Flathead Lake, where they've worked on that a long time. There is criteria out there, and we're just kind of trying to figure out what the final numbers ought to be, working with the Flathead biostation, etc. So other than that one, though, there won't be any reservoir or lake criteria in the near future.

So let's go look at the Clark Fork River for a moment. The reason I bring this one up is because this is a really nice case study to see what the implication of the actions you may be asked to take here in another few months are going to be in the long haul, because you're going to be taking actions putting criteria in place that will then in turn be implemented over time, and what happens.

Probably our best case study is on the Clark Fork. So as I mentioned in 1998, they had a voluntary nutrient reduction strategy that went in place. Later on we adopted those as standards.

All the major point sources on the river have been working to reduce their nutrient loads to the river, especially in certain cases. Missoula is a very good example. And we've definitely seen some improvements, and some not so successful areas.

So in general, the river kind of splits itself into two halves. Upstream, the Blackfoot River Confluence, you tend to see reductions in nutrients, but not quite enough, and the algae problems are still manifested there, although they're kind of moving in the right direction. They just quite haven't hit the standards.

Downstream, once you hit Missoula, which put in a big upgrade to their wastewater facility in 2004 and 2005, and we see a pretty sharp reduction in the nutrients -- I'll show you that in minute -- we're definitely seeing achievement of the standards.

So this particular site, which I want to talk about, is called Site 18. It's been monitored continuously every single summer since 1998, monitored right on through this year. These data go through 2009. Here these numbers and data show the trends of the total phosphorus in "A," total nitrogen in "B," and the chlorophyll "A" --

we talked about chlorophyll "A" earlier in the terms of the way we measure bottom attached algae -- and the standards.

So you can see here, especially when the facility went in place in 2005, there is a sharp drop in the total phosphorus that's notable at this station, which by the way is downstream of the mixing zone.

So this would be the ambient river. And although the criteria was set down there at 39 micrograms total phosphorus per liter, they're actually achieving closer to 20, which our subsequent studies say probably is what the standard ought to be; and is also by the way the standard that they set for the upstream river since 1998, but it just hasn't been achieved in many cases.

Also they have seen improvements, steady improvements through time here in total nitrogen, and they basically have been achieving it since about 2008 consistently. We've run statistical analysis on this, accounting for changes in flow, etc., and they still show that these trends are either due to human changes, actions, improvements to the river, not just changes in weather, or

flow, or rain patterns.

So you can see that going along with this correspondingly, the algae levels that have been monitored every summer are actually coming down as well, and here in these recent years, they're essentially being achieved in the ambient reaches of the river. This is in spite of a 20 percent population growth increase in the basin, and in Missoula in particular.

So this shows you that these kinds of standards and criteria can be effective in achieving the water quality goals that have been set for a river system.

MS. BUCKLIN-SANCHEZ: Mike, I have a question. You just mentioned that the external circumstances, that there's changes. For example you mentioned population. Is that why the total nitrogen rose there and then --

MR. SUPLEE: We don't really know why it's doing this. My guess is there were some fairly higher flow events in the early 1990s in the summer, and the general pattern that you see --

MS. BUCKLIN-SANCHEZ: Does the pH, the time of year and the pH reflect how much nitrogen

you would get then?

MR. SUPLEE: Not so much as -- What happens in general is high flows in the summertime tend to lead to higher nitrogen concentrations in these river systems, and so there's more influence from groundwater. In contrast, higher flows tend to lead to higher total phosphorus concentrations.

So what we've seen is that this may have been a period when there was relatively lower flows possibly, and so there was more influence from groundwater. I may have been getting them mixed up.

MS. BUCKLIN-SANCHEZ: You mentioned population. And then other things like forest fires, and pine beetles, do those influence nitrogen and phosphorus?

MR. SUPLEE: Yes. They do definitely. So the one factor that -- These data are just shown as we measured them.

MS. BUCKLIN-SANCHEZ: Raw total nutrients.

MR. SUPLEE: Yes. So actually when you actually run the statistics, what you do is you adjust for the effect of flow, because flow is the largest single effect on total nitrogen and total

phosphorus measurements that you can measure as an external value, and so the typical relationship is higher flows means higher total phosphorus, and higher flows means lower total nitrogen, so they're inversely related.

So when you account for that, you can really see if the effects of people's management activities have changed or not, and that's what we were able to do with the statistics, and they clearly show that the phosphorus and nitrogen have both come down, especially the phosphorus, because the way the patterns have worked out, we should seen more phosphorus in the river in recent years, because we've tended to have a little bit higher flows as the drought eased, and in fact it's been going down. So that's based largely due to the improvements in the wastewater facilities and other actions.

MS. BUCKLIN-SANCHEZ: I could just make a comment. I guess I'm kind of stunned to see the impact of point sources. I always assumed that nonpoint sources had as much or more influence, and here you're pointing to a point source.

MR. SUPLEE: Well, I think that point source -- nonpoint sources are not unimportant,

but the reality of it is in all the big river systems that we have studied, the Yellowstone, Clark Fork, and others, that have large facilities, municipalities on them, when those municipalities or other people do major improvements to their treatment facilities, you see a marked effect on the river, especially in phosphorus. So that's just kind of a fact of the river.

When the original studies were done on the river in the late 1980s, I think it was something on the order of 50 percent of the phosphorus load to the river was accountable to four major point sources: Butte, Deer Lodge, Missoula, and Stone Container at the time. So that just gives you an example of the significance that point sources can be in terms of their influence on some rivers.

MR. SALLEY: What was the change in the process of the treatment plant that --

MR. SUPLEE: They went from a standard secondary treatment plant to a biological nutrient removal, and so that brought down the "N" and "P" significantly. Our engineers in the room can give you those exact numbers if you want more detail.

MS. WILLIAMS: So two questions. If Stone Container reactivated its discharge permit, would we see an increase?

MR. SUPLEE: Possibly. But then they were already coming down a lot because of reductions in the amount of workload.

And they had changed their process in the early 1990s, I believe. They were actually adding phosphorus because they needed the additional nutrients to help break down the paper products in some of their digester ponds. They refined that process significantly in the 1990s, I believe, and that really brought down the phosphorus by that action alone. So they were able to actually fine tune their internal engineering process to knock down nutrients. Probably if they were to start back up, they'd do that and more.

MS. WILLIAMS: And then the second question. You've got a pretty high 2010 data point there. I can't quite see it how it's lined up. But will that tip up then? Will the average tip up?

MR. SUPLEE: No. This line, this regression line, is called a LOESS -- Locally

weighted regression line -- so it's accounting for all this noise. That data point is included in here. This is the nature of monitoring benthic algae in river systems. It is noisy, and there are -- the system is not 100 completely understood or perfect, but the trends are unmistakable.

And I should point out, too, that in the last two years, 2010 and 2011, the algae levels have dropped even more, so they're now hovering -- the last two years of monitoring are down in this area. So they're continuing to come down.

MR. WENDLAND: So Mike, on these larger rivers, when you go -- like the Yellowstone and the Missouri, but if you go from the mountains out onto the prairies, are that criteria in different sections or are you just --

MR. SUPLEE: No. We have different -- In Yellowstone River -- Let's go back to that slide because I think that might be helpful.

MR. WENDLAND: I should have asked when I saw that picture.

MR. SUPLEE: So the Lower Yellowstone River, by the time we -- Our study reach began at Forsyth, so now we're well down into the lower part of the river. So there is an ecotone near

Billings and Laurel where it kind of shifts from a trout fishery to a warm water fishery. We're well past that.

Even still, we have two different criteria reaches in this lower section. So the effect that we're taking account for primarily in the lower reach is the influence of the Powder River. The Powder River dramatically bumps up the turbidity, changes the way the light patterns and the algal growth behaves, etc., and so the criteria for that lower reach are much more liberal than those immediately upstream. So moving forward into the other reaches of the Yellowstone, we'll probably have two or possibly three distinct criteria reaches.

MR. WENDLAND: Thank you.

MR. MATHIEUS: Just relating back to some of the nonpoint source questions, the previous dialogue. It's probably important to note that the other thing that Missoula did was they had a pretty aggressive effort to hook on septics, and existing septics, and restructure how they -- you know, recognizing that they have a very shallow alluvial groundwater system in that area. They hooked up dailies. There was some

pretty significant sort of capturing nonpoint source in that area as well, so --

MR. SUPLEE: I forgot to mention that. That's a really good point, because that was considered probably the -- The Tri-State Water Quality Council thinks that that is probably the second most important action on the river in the last ten years, after the BNR planned upgrade in Missoula. So that's a very important point.

So anyway I just wanted to show you that there's a lot more of this. We'll have a paper coming out on this in a few months. It's going to come out in a peer reviewed journal. So I just wanted to show you this because is sort of the implications and actions of nutrient standards, and what -- you know, kind of a case study of what they lead to, and how it tends to play out over time in a basin right here in Montana.

So now we're going to talk a little bit about implementation. Like I said, the criteria we showed, we looked at those a little bit earlier, those are pretty stringent standards. A lot of those ones, especially for western Montana, are going to be difficult to meet, and a lot of it leads back to this: Again, this is a point source

issue.

But if you look at a typical western Montana stream criterion that allowed 30 micrograms TP per liter, on the top graph on the left, and you look at the approximate wastewater technology limit, you can see that the bar represents sort of the argument area of the engineers as to what the limits of technology, practical technology. Depending on the engineer you talk to, it would fall somewhere in that black bar.

What you can see is that with the total phosphorus, you can achieve or get close to our western Montana criteria if you put in a good enough facility, like that BNR plant or something more sophisticated than that, like they did in Missoula.

On the other hand, for total nitrogen, what we're finding is total end criteria are going to be down in this range, 300 to 1,000 micrograms per liter, depending on where you are; and the approximate wastewater technology limit is more like 4,000.

So there is a big gap here, and this is where trying to achieve these tomorrow, right

away, one permit cycle is just not going to be feasible, especially in cases where there is a lot of influence in a stream by a wastewater facility, because they just cannot get that kind of reduction so readily. So this is where the implementation over time component comes in that we have been working on for the last several years.

So what we've done is we've built in options for communities to receive temporary relief from the standards, based on the ability to pay for the treatment, and available technology.

And I just want to point out that these -- we'll talk about variances here -- they apply to the wastewater treatment beyond the national secondaries, so the national secondaries which are in place, which are like TSS, BOD, percent removal, etc., all wastewater facilities are supposed to be able to do those, and these exceptions do not apply to them. They apply specific to nutrient standards that we will be adopting in the near future.

MS. WILLIAMS: Actually can you back up. If we're trying to help you prepare for the Board presentation, that I'm assuming is one of our

roles here, it is actually the inability to pay for treatment, isn't it?

MR. SUPLEE: Yes, that would probably be a better way to phrase it. Thanks.

This is kind of an overview of what Senate Bill 95 and 367 did. I put them together because they're essentially -- one is just an extension of the other. So what they do, they give us authority to grant variances from the nutrient criteria. These variances are kind of -- Sometimes we think of variances as a variance in construction, where once you get that variance, you build your building, it doesn't meet the standards for construction, then you're finished.

These variances are different. What they are is they're basically an allowance for over a period of time, usually not to exceed 20 years, where you don't have to meet the standard, but you're supposed to be working towards the standard, and ultimately the standard has to be met. That's how water quality standards variances differ from perhaps other types of variances you may have heard of.

And so we didn't have authority to grant variances from the water quality standards prior

to these Senate Bills, so Legal Counsel told us we needed to, if we were going to try to do this with nutrient standards, we needed to get that authority. And so Senate Bill 95 was our first effort to do that.

Now, subsequent to that time, we came out with 367, and they give us a little bit more detail, because what happened was Senate Bill 95 essentially said, "Department, you can grant variances on a case-by-case-by-case-by-case basis only," and when we started getting into the amount of time that would involve, other problems relating to different types of permittees, it looked like it was not going to be functional.

So Senate Bill 367, which was largely led by the Nutrient Work Group, allowed for something called general variances. So essentially the idea there is if the permittee can't meet the criteria now, but they can treat effluent to these statutorily defined levels, then they can receive a general variance, and they're based on the discharge volume.

So if you are greater than one million gallons per day, you can treat to one milligram TP per liter and ten milligrams TN per liter during

the summer in your effluent, then you can receive a general variance as a first step towards ultimately meeting the nutrient standards. And then it varies. It is a little bit less stringent for the smaller dischargers.

And then for lagoons, which are very difficult to deal with technologically, unless they were to go to a very expensive change, are at this stage asked to maintain current performance. So this will allow us to at least make the first step towards nutrient control, while other types of efforts in the basins are implemented; and also it buys time, because it takes time for some of the technologies to mature -- George mentioned some of the ones that are kind of out there and being worked on -- to ultimately achieve low nutrient levels consistently.

There is also the option still, which was an original part of Senate Bill 95, to have an individual variance. So if you're a permittee, and you say, "I'm greater than one MGD, and I can't even meet those. It would just break us," and you can come in for an individual variance, and go through a unique economic analysis specific to your community.

And if that all comes out and shows that, yes, that would really cost too much, then you may be able to get an individual variance with criteria that are somewhat less stringent than those. So perhaps instead of getting one milligram TP per liter, you may get two or three, or something like that.

CHAIRMAN SELCH: So that second one should be phosphorus, or nitrogen, 15 milligrams total?

MR. SUPLEE: Yes. Sorry about that. Nice catch. Thank you very much.

So basically the overall idea of these laws is that they allow time for Montana to implement the criteria about over a 20 year period, and it will help us in the sense that technology will improve, costs will come down, and there is also time to deal with the other part of the puzzle, nonpoint source, which is out there, a big piece of it in some cases. So that is the general purpose of this law.

Those laws are now encoded at 75.5.313, and one of the other things they do is they describe the Nutrient Work Group. The Nutrient Work Group is an advisory council, not unlike

this, a broad cross section of stakeholders, and they advise us specifically on nutrient standards.

We've met with them 15 times since 2009, we're meeting with them again at the end of February. And we usually go over many different topics, and we're not quite finished having discussions with them before we go to the Board, but we've resolved many problems relative to what we had when we first started meeting with them.

And I'm not going to talk about nutrient trading because Todd is going to talk about that, but the Senate Bills and this law also allowed for trading, and so Todd will talk about that later.

So this is actually the circular that you, this council, would be looking at and evaluating prior to going to the Board, and it's actually two parts, "A" and "B," it's got the criteria, the procedures for the general variances and individual variances, how permits will be written; and the rules also contain nondeg.

This is where it is on the internet, the DEQ Nutrient Work Group site. I also have copies here if anybody is interested in the latest version of it. But they're not an action item. They're just available if anybody wants to see

them early, in order to see what it looks like.

I'm pretty sure that -- Legal should tell me if I'm saying this right, but I'm pretty sure that this group would primarily only be taking action on Part "A" and the rules. Is that correct, Claudia?

MS. MASSMAN: That's right.

MR. SUPLEE: Part B pertains to Department rules, more how we implement the variances. The first part talks about the criteria, etc. If anybody wants any of those, I can pass those out.

MS. WILLIAMS: So the nondeg part, can you tell us what is in this for nondeg?

MR. SUPLEE: Sure. What we have for nondeg, that's not in the circular, but that's actually in the small rule packet separate, because the nondeg is already in our rules.

Essentially what we've said is insignificant, nonsignificant if water quality changes up to 50 percent of the base numeric nutrient standards, which is the criteria we've been looking at.

So if a water quality change was to occur from an action, and let's say the standard

-- Let's say the water quality is currently at 10 percent of the standard, and somebody was going to take some action, and it goes to 20 percent, that would be considered insignificant, and that would be allowed. Now if they were to take it from 10 percent of the standard to, let's say, 80 percent of the standard, then you would move into the zone where that would be considered significant degradation.

So this of course only applies to streams where the water quality is currently superior to the standard, which there are many streams out there like that. The vast majority of them are, in fact. Our estimates are something like 80 percent or more of the streams in the state already meet all these standards. But where there are already wastewater facilities, in most cases, they're above the standards. So nondeg doesn't really even apply. That's how it's set up. It's a relatively simply nondeg rule.

This was also really important. Just last month, after many, many, many discussions about what our Senate Bills meant, and were they legal, and what approaches were we taking, EPA sent us a memo basically saying that they accept

this overall package that we're putting together, which is the criteria, and the implementation of the variances, to meet the standards over time.

So they basically told us that they recognize that we were doing a good job on the technical side, and that they concluded that the issue -- and this was the important part really. "EPA concludes that the issuance of variances would be consistent with the Clean Water Act as implementing regulation."

So that was for us, the Department, a big success, because without it, once our -- even if the rule package was to make it past this group and then adopted by the Board of Environmental Review, because EPA has final write-off authority on our water quality laws, they could have stopped it if they had chosen to. So we've been working very closely with them in the background to make sure that they're going to be okay with it, and so that was a big step in that direction.

So looking forward for adoption. Our next Nutrient Work Group meeting is at the end of February. We'll probably have some more meetings after that, maybe monthly, depending on how many residual issues are still out there. But assuming

we get those details worked out, we're targeting a Board package for July hopefully, maybe September, but hopefully July; and of course at that point, public hearings, etc., all that kick in.

So I'm not exactly sure, but I believe we need to get the package to you this spring. Is that approximately correct? How many weeks in advance of the Board approximately?

MR. BUKANTIS: About a month.

MR. SUPLEE: We would get it to you then early summer or late spring. Some of the pieces and parts, like I said, are already available, but they're not action items at this point, they're just drafts, and they're going to change a little bit as we go forward.

So that's what I have. That's where we're at. Do you have any other questions that anyone can answer?

MS. WILLIAMS: This isn't related to rules, but it might be interesting to package some discussion about it. George touched on it.

But apparently there is someone down in the Bitterroot that has an algae based technology that he thinks can treat --

MR. SUPLEE: I've visited the facility.

Paul LaVigne and I did a tour of the facility about a year ago.

MS. WILLIAMS: I guess my point -- Well, apparently he thinks that this assumption that everybody has been talking about, that no technology is available, may be changing.

MR. SUPLEE: Yes.

MS. WILLIAMS: I guess I think what might be helpful is I think DEQ has some programs to help businesses like that, correct?

MR. SUPLEE: I don't know.

MS. WILLIAMS: Because the concept of "the technology will improve" seems really passive to me, and I think if this is such a hardship on people, that it would be helpful for the agency to -- if they are helping these new technology companies develop these new technologies, to mention that.

MR. SUPLEE: Good point. Another thing -- I don't think I went into that in detail on this -- part of the regulation and in statute is that every three years -- Every three years we normally have to go and revisit our water quality standards to make them current with the latest science, etc. This is just a normal action for a

water quality standards group.

But every three years synchronized with that, we need to revisit the technologies, etc., etc., to see if those variance numbers are still current, and if they are not anymore because a new technology has come along, and it's readily applicable, etc., then that we have the authority to lower or make more stringent the variance numbers as another step towards achievement of the criteria. That's a requirement that we have to do.

MS. WILLIAMS: I guess it is just my opinion that we should -- And I know regulation is DEQ. But if we can also foster the achievement of some of these technologies, and if we are doing it, to mention that would be I think appreciated by a variety of sectors.

MR. MATHIEUS: I can address some of that, Kathleen. I think we're doing quite a bit. I think from a funding perspective, we're considerably limited compared to where we were in the past, which off the top of my head, the one you mentioned down in the Bitterroot, we've worked with those folks as far as at least communicating, having our engineers communicating with them and

meeting with them. We funded that project -- Columbia Falls I mentioned, and we've been involved.

There was this other outfit, I think it was called the "Floating Islands." So we were involved with locally here, maybe not so much from a funding perspective, but just being involved in the process of doing a case study.

There is other mechanisms out there beyond the one you have described and in the Bitterroot that we've worked with those folks. So as much we have the ability to, I think we're working with and promoting, and we're heavy on the biomass, and all that stuff as much as we can. I think we're exploring all those opportunities, and trying to not just wait for stuff to happen, but help push it.

MS. WILLIAMS: I'm the public representative on this group, and I think just wrapping that into the public presentations on this. And I don't know if that guy or any of those guys are on the working group, but --

MR. SUPLEE: No, they're not.

MS. WILLIAMS: So that's just a comment, that I think from the public perspective, we need

to be showing that we're trying to foster solutions as well.

CHAIRMAN SELCH: I've got a question for you. This might be a little drawn out.

But if these standards are seasonal criteria during low flow conditions -- your example in the Clark Fork obviously is heavily dewatered and rich in nutrients. Has there ever been considered, as far as --

If the limitations with technology aren't there, and say a facility can't meet them, if you offered, and they bought in-stream flow rights to sort of dilute the concentrations, rather than a -- you know, it's seasonal standard, and it's concentration based, not a loading rate standard, double the flow -- you're assuming it is nutrient poor water.

MR. SUPLEE: We had a lot of discussions about water rights relative to the standard and meeting the standards, but they tended more -- this was during the Nutrient Work Group. They revolved more around -- If I am discharging water to the river, and I choose to not do that anymore, am I affecting somebody's downstream water right. That was more the issue.

In other words, like Billings, for example, was talking about in the summer routing their wastewater effluent to a purple pipe system, or possibly growing some alfalfa up gradient, so maybe much of that water would never go to the river, and that solves their discharge problem during the summer. So there were discussions about -- what about, "Am I affecting somebody's downstream water rights?" But to actually purchase water, clean water, for example, and put it into the river for dilution purposes, I'm not really sure how that works.

I believe Butte does that, or that was one of their strategies during the whole VNRP process, that exact. They were taking water out of Silver Lake, which has very low nutrients, and routing it to their compliance point, which is the Silver Bow, over to the Clark Fork. But I don't think we've had too many discussions about that exactly.

CHAIRMAN SELCH: I know a lot of times some of those treatment plants make up the largest portion of the in-stream flows that go -- you don't want that to go away obviously.

MR. SUPLEE: Right. So that is kind of

one of these balance points, but the other reason is that waiting for the technology to improve, etc., is also sometimes of value, because we don't pull -- not always. It just depends on the situation.

MS. WILLIAMS: So the upper -- We are seeing improvement in Lower Clark Fork. The upper Clark Fork -- I mean the Blackfoot, what are the solutions there?

MR. SUPLEE: Above the Blackfoot?

MS. WILLIAMS: Yes.

MR. SUPLEE: Well, they have done some nonpoint source work. Deer Lodge is still struggling with how they're going to do things. They didn't discharge for awhile, and then they went back to discharging, and they're trying to get that resolved. So that's been part of the problem. We've seen an up-tic in phosphorus especially since they went back to discharge, but that's a temporary situation.

My understanding is that Butte is supposed to have a BNR plant on line by 2014; is that right?

UNKNOWN SPEAKER: Yeah.

MR. SUPLEE: That we -- based on what we

saw in Missoula, I would anticipate that that would have a pretty substantial effect downstream. So that may be a big improvement for -- and I think it's even a better facility than Missoula. So that means that we'll probably see -- That's really going to help out the upper river, and it's probably going to help out the smaller communities that are down the road, Deer Lodge, and Clinton, and those.

But they're not quite there yet. They've tended to kind of get close to the "N" or the "P." They've never quite achieved them both at the same time, and we're seeing is that achieving the "N" and the "P" standard on the Clark Fork River simultaneously seems to be the ticket to getting the algae levels down to the standards. Any other questions?

CHAIRMAN SELCH: Any other questions for Mike?

(No response)

CHAIRMAN SELCH: If not, the next speaker will be Paul Lavigne.

MR. LaVIGNE: I thought I would pull this off without a Power Point presentation, and that's what I'm going to do, but in retrospect,

maybe that would have been more helpful. But I did make some copies of things this morning that you might look at.

I'm Paul Lavigne, and I manage what's called the Water Pollution Control State Revolving Fund. And just kind of to put that program in context, we're not a bunch of accountants, as you might assume.

It's actually way worse than that. We're a bunch of engineers. And so we have that program which funds water pollution control activities, and so it evolved into what's called the Construction Grants Program, which is an EPA program that funds a lot of facilities around the state and around the country. It's now a loan program. So we do a wastewater treatment program and collection stuff. So that's kind of one aspect of our program.

The other aspect is technical assistance, and we do a lot of O&M inspections, operation and management inspections; and a lot of technical assistance to operators, and engineers, and the public, just the general public, related to wastewater treatment. And in addition to that, we kind of do a lot of behind the scenes stuff.

I've been involved with Mike and the Nutrient Work Group stuff, and numeric nutrient criteria.

Then we've also worked on design standards for wastewater treatment, and that circular that contains the design standards is called circular DEQ2. Here is an example of the current version. And I've got a couple experts back here. Reuse is part of that. I've got a couple people I'd like to introduce that have been very instrumental in dealing with this.

Mike Abrahamson way in the back is one of our engineers that's been responsible primarily for developing DEQ2. Then Terry Campbell, who you've met before, has been working on reuse standards.

So DEQ2, to put it in context, it's essentially a tool box full of design standards that consultants would use to design wastewater facilities, whether treatment, or collection, or whatever; and it wouldn't matter if they were groundwater discharge systems or surface water discharging systems, but they're generally the larger municipal type systems.

It is developed from what's called the Ten State Standards, which has been around for

decades. There's ten states in the midwest that have kind of gone together and compiled these design standards. We essentially take their standards, tweak them for Montana's needs, and then in this case, we've added a bunch of new stuff, too.

So we started with DEQ2 I think in 1994; we revised it once in 1999; and then this is our next revision. And compared to the last revision, this one is pretty substantial. It goes through and generally tweaks and cleans things up, but it also adds design standards for some new processes as we come along; it adds a standard for biological nutrient removal, or BNR, and then we talked on the reuse standards as well.

So I just kind of wanted to touch on a couple things briefly -- there is way too much to go into in detail here -- on DEQ2, and then maybe a little more specifically on the reuse standards; and there is rules that accompany those, there is a law change, and that sort of thing.

The main things that we touched on in DEQ2 were land application, which was already in there, and that's separate from the rest of the reuse because the land application that we've done

so far has generally been at agronomic rates, so reuse would allow application beyond agronomic rates.

The one thing that we found in the land application standards that are currently in here is that it just deals with design, but they're --

We go out in the field quite a bit, and we saw problems where they really weren't demonstrating to us that they were not impacting groundwater or surface water, so we added operational requirements in there, and sampling and monitoring, just so they can make sure that the water that goes out there, and the way that they're applying it, all the nutrients are taken up by the crops, and the crops are harvested and taken off the site. That's in a sense the major change that we made.

New technologies that we added were membrane bioreactors, sequencing batch reactors, and then biological and nutrient removal. So the MBR's and the SBR's are technology that has come about in the last ten years or so, and we're starting to see a lot more of them. There is --

An MBR is a membrane biological facility. Essentially the membrane replaces the

clarifier, so you have this kind of barrier that is -- I think they're -- What size are those barriers?

UNKNOWN SPEAKER: .2 microns.

MR. LaVIGNE: .2 microns. So they provide a physical barrier, and kind of get away from the upset that you had with clarifiers, that if you got a hydraulic surge, you could wash solids and stuff over your clarifier. So this is a high cost, but a small footprint kind of approach.

And Bigfork is putting one in right now. Butte is looking at one. River Rock down the Gallatin Valley is looking at one. So they're coming about. And no one had design standards. We had no consistent way of reviewing them, and a the consultants had no consistent way of designing them, so we thought it was important to put those in.

Then of course BNR, a few of those facilities around the state. That kind of started -- that trend kind of started up in the Flathead Basin with -- essentially it was kind of a pseudo-TMDL that the wastewater allocation was developed back in the late 1980s.

So there are nutrient removal plants at Kalispell, Bigfork, Whitefish, Columbia Falls, and Yellow Bay. They've been around for quite awhile. Kalispell just upgraded their plant; Columbia Falls upgraded their plant; Whitefish is kind of halfway there; and then Bigfork is in the middle of a major upgrade.

But Missoula then, they built a BNR plant. Helena has been building a BNR plant. Helena built kind of a halfway BNR plant just for nitrogen, so they have another step to take yet. Billings and Great Falls, they haven't done anything yet, but it is probably coming.

So there really -- Ten State Standards really did not address nutrient removal at all. So Mike did a bunch of research, and he put together some design standards for biological nutrient removal.

Going on to reuse, as I mentioned, Terry Campbell kind of briefed you guys a couple times over the last couple years on the reuse standards. House Bill 52 in the last Legislature gave the Board authorization to adopt reuse rules and standards. It defines reclaimed wastewater, and required DNRC approval related to water rights.

There is a lot of reuse already going on. There is a lot of spread irrigation facilities out there now, there's 20 or 30 municipal systems, and they've skated by the water reuse issue.

Deer Lodge was challenged on their spray irrigation issue there, when they pulled water out of the stream and land applied it, and that went -- it was somehow -- I guess DNRC in their, whatever system they had there, decided it was considered waste, and so water rights shouldn't apply, and that's currently their kind of thinking generally. If DEQ requires reuse or approves reuse as part of their approval, then that is considered waste, and not subject to water rights challenges and beneficial reuse challenges. So that's kind of generally their current view on this.

We've developed a Memorandum of Understanding between the two agencies to review those water rights issues before we approve anything from here on out, so that will be considered.

I think Claudia -- Our thinking on this was that we would not be having to deal with the

Water Quality Act, but in essence we do have some changes in there, correct, in the rules?

MS. MASSMAN: In the rules. Some of those rules would be water quality related to groundwater permit stuff.

MR. LaVIGNE: I just wanted to go into that for a second. I handed out a couple -- Page 1 is -- I handed you three things. One is the reuse chapter out of DEQ2; another one is House Bill 52; and the other is a couple of changes to rules pertaining to the Water Quality Act and Public Water Supply Act.

On that first page on Water Quality Act rules, you can see that reclaimed wastewater just refers to the definition in the act. It does define unrestricted reclaimed wastewater. That's probably the most contentious issue here, potentially the most contentious issue. And then it incorporates by reference DEQ2. So down below.

MS. WILLIAMS: Why is it contentious?

MR. LaVIGNE: Well, because what we're saying is if you treat to a certain standard, and those are such as oxidized, coagulated, and disinfected, and meet a nitrogen limit of less than five, you don't need a permit. So it would

be an exclusion from a groundwater permit. In my mind, it was potentially the most contentious. You guys might feel otherwise.

Everything else in terms of the reuse stuff is pretty consistent with what almost all of the other states have done. The unrestricted reuse, some states don't do. Arizona -- I think that is where we got this, from Arizona.

But five milligrams per liter is the lower end of the limit of nondegradation. So if you can treat to that at the end of the pipe, essentially you have met nondegradation right off the bat for nitrogen, and of course the water quality standards for nitrate is ten. So if you're below that. So we felt it was at least worth a shot to try to do this without a permit.

MS. BUCKLIN-SANCHEZ: What is the distinction between public sewage and wastewater?

MR. LaVIGNE: I think wastewater wasn't defined and sewage was, so that's why we crossed that out, if I'm not mistaken.

MS. MASSMAN: Public sewage systems.

MR. LaVIGNE: Public definition for one.

MS. MASSMAN: It is defined in statute in Senate Bill 52. House Bill 52 basically gave

the Board authority to allow reuse for public sewage systems. So the clarification in the rules just to make sure that we're talking about the same thing the statute does. And wastewater, I think it is defined in rule, but it can include industrial waste. So we stick with the authority that we were granted in the statute by referring to public sewage systems.

MS. BUCKLIN-SANCHEZ: That's kind of what I would assumed. That's what I would have assumed, that it would exclude industrial wastewater, is why we define it as public.

MS. MASSMAN: Yes. They're supposed to be public sewage systems.

MR. LaVIGNE: It might have been a little short-sighted on our part. Certainly industrial wastewater could be reduced if it was treated correctly.

MS. BUCKLIN-SANCHEZ: Can you clarify that just a little bit more, please.

MR. LaVIGNE: Sure. I didn't hear your question.

MS. BUCKLIN-SANCHEZ: So the distinction that it's a domestic or public sewage rather than from an industry.

MR. LaVIGNE: Right. So public -- so it's domestic wastewater from a public system, and public is like 25 connection or more sites. It's not individual onsite sort of stuff. It's generally the larger systems. Does that answer your question?

MS. NEUMAN: To me industry is also public.

MR. LaVIGNE: But it just can vary so much. With domestic wastewater, it doesn't vary that much. We know what's in it typically, especially in Montana. Now, if we had a bunch of industry that was contributing to some system, like Chicago or something like that, you don't really know what's coming out the end of the pipe. But generally the monitoring and stuff that's required in the permit, we generally have an idea of what's coming out of the system, what's going into the system, too.

MS. WILLIAMS: Are we making more out of this than we should? Because it sounds like it is used to apply to public water supplies or public wastewater systems, right?

MR. LaVIGNE: Right.

MS. WILLIAMS: So it is not a narrowing,

it is just a change of terminology.

MR. LaVIGNE: Right.

MS. WILLIAMS: "Public" applied to water supply and wastewater.

MR. LaVIGNE: So I think we've kind of covered what's in the rules pertaining to the Water Quality Act. Do you want me to go into what has changed in the Public Water Supply Act as well? Karen, you probably understood it.

CHAIRMAN SELCH: Sure.

MR. LaVIGNE: It is not inconsistent. It is just --

MS. WILLIAMS: Can I back up a second? I'm just trying to make sure I'm on the right page here, because our agenda item just has nutrients. So is there like a multi-piece package that has various rule changes that are going to -- and we're hearing another part of the package now -- that it is all going to the Board at the same time? Is that what's going on, or am I really --

MR. LaVIGNE: I don't know the timing on Mike's stuff.

MS. WILLIAMS: Maybe that's a question for Bob.

MR. BUKANTIS: Basically I think the

whole intent in the agenda item was an overview of the Department's efforts to regulate and address nutrients, and embedded in that are particular items that you will see that will come in front of you as action items in the future, like Mike was kind of more specific about.

MS. WILLIAMS: And they may be at various times.

MR. BUKANTIS: Yes.

MS. WILLIAMS: Sorry. I just needed to get on the right page.

MR. LaVIGNE: Just to maybe bring this effort in context, what we plan to do at the next Board meeting is just kind of a briefing, because this is way too big just to hand them to look over. What we're going to do is post this on the web. It's still a working document. Then they would have two months to look at it before we introduce a request for rulemaking. So then maybe they'd have a chance to look at it and have comments for us.

MS. WILLIAMS: So all the proposed changes in DEQ2 are related to the nutrient strategy?

MR. LaVIGNE: Not all of them.

MS. WILLIAMS: Oh, it's broader. Okay.

MR. LaVIGNE: Right. It certainly is broader. We tried to wrap them together, mainly because reuse ties into it, and obviously reuse ties to nutrient. If you can get water out of the river, it's a benefit in terms of nutrients.

Going on to proposed changes to the rules for the Public Water Supply Act. It just goes into approvals. It says that it must be approved in compliance with the reuse standards in terms of treatment. There is monitoring, sampling requirements, and reporting requirements.

It also addresses that the applicant must get approval from the DNRC for the water rights sort of thing. There is prohibitions for using water that's not been treated correctly, or using water in a use that's not approved.

And the other thing is there is a modified -- proposal to modify the cross connection rule that protects drinking water supplies from other -- from wastewater and now reclaimed wastewater. Those are essentially the proposed changes there.

If you look at this one called New Appendix B, that is essentially the reuse

standards, and they're embedded in DEQ as Appendix B. And essentially what this does -- This is still a work in progress here, so we've changed it a little bit even since I made this copy.

But essentially there is a couple tables in there that are pretty -- They're kind of the core of the whole thing. So what we've done is broken effluent into essentially four or five different classes, so A-1 and B-1 then are the ones that have unrestricted reuse. So those are the ones that get --

The key element there is nitrogen, total nitrogen less than five milligrams per liter, as disinfected as well, oxidized, coagulated. The difference between A-1 and B-1 is that A-1 is filtered as well, and B-1 is not. But then it goes down to the lesser treated effluents, and "C and "D," Classes "D and "C" as well.

And the first table in your version has a list of allowable uses for reclaimed wastewater. So we've got -- For spray irrigation, which we've always had, but in this case, we'd be allowing them to spray at greater than agronomic rates. So currently our reviews and approvals are based on agronomic uptake. This allows them to go beyond

that.

Landscape irrigation, drip irrigation, and animal and fish operations -- so fish hatchery kind of thing -- decorative fountains, jetting and flushing of sanitary sewers, street cleaning and washing, dust control and soil compaction, firefighting, toilet and urinal flushing, industrial uses.

And then wetlands, too. We only have design standards. We have guidelines for constructed wetlandsd use for treatment, and those are lines facilities. This would allow reclaimed water to be used for natural or constructive unlined wetlands.

And then also aquifer recharge, aquifer injection, indirect potable reuse, stream flow augmentation, and snow making. Now, a couple of these, two or three of those, would require a permit, and that's stated in here. There is a couple of oversights that we're working on today that I just kind of left out, so we're kind of tweaking them.

Then we go on to the fence requirements, control of the land, control of the site that you are spraying on, or whatever. Conveyance,

standards for conveyance. And what's not in this one that we're working on now is monitoring and reporting requirements.

So that's kind of reuse in a nutshell. It's been a couple years in the making. I know we've presented it a couple times, but we didn't really have anything to show you. This is kind of where we're at right now.

CHAIRMAN SELCH: Thank you, Paul. Does anyone have any questions for Paul?

MS. BUCKLIN-SANCHEZ: I just have a comment. It's a huge amount of work that you guys did, on not just the reuse, but also I'm really excited about the DEQ2 design criteria for the technological base types of treatment. So I just want to say great. Thank you.

MS. WILLIAMS: I'm guessing that -- Well, we had some legislation come through that provided property tax abatements for, I think it was subdivisions or individual dwellings doing gray water reuse. Is an individual dwelling or a subdivision not considered sewage or not considered a public --

MR. LaVIGNE: The individual wouldn't be, but the subdivision would be, depending on how

many --

MS. WILLIAMS: So the subdivision would be subject to these design --

MR. LaVIGNE: Yes. This could be a benefit to them potentially.

MS. WILLIAMS: And then the second comment, I obviously made a bunch of phone calls about new technology within the last month, and got some feedback. Actually thank you, Mike. I forgot to thank you for suggestions on that.

But we had one company say that the design, DEQ's design standards wouldn't allow them to develop their technology. So if I gave you their name, would you be willing to talk to them?

MR. LaVIGNE: Sure. There is a section in -- that's always been there in DEQ2 that allows for new and innovative processes, but they need to prove it.

MS. WILLIAMS: Well, they made a -- came on the record and said that. So if I could just connect you to --

MR. LaVIGNE: Sure. It's Algevolve.

MS. WILLIAMS: That's the Bitterroot company.

MR. LaVIGNE: Algae development company

in the Bitterroot.

MS. WILLIAMS: This is the Drake company.

MR. LAVIGNE: I haven't heard of them.

MS. WILLIAMS: They're here now.

MR. LaVIGNE: I'd be glad to.

MS. NEUMAN: I just need a clarification on subdivisions. If the subdivision allows individual homes to have their own wells and septic tanks, how do they fall under the previous statement that she was saying --

MR. LaVIGNE: Then they wouldn't meet the definition of a public system, so they'd be a private system.

MS. NEUMAN: We're really concerned because we're on different elevations, and this one has got the well, and this one has got the septic tank, you know.

MR. LaVIGNE: Sure.

MS. NEUMAN: So we have no --

MR. LaVIGNE: For reuse, there really --

MS. NEUMAN: I'm not even thinking reuse, I'm thinking --

MR. LaVIGNE: Just treatment?

MS. NEUMAN: -- contamination.

MR. LaVIGNE: And Steve could probably jump in here. We've got the Level 2 treatment now requirements, and that sort of thing, to help bring the nutrients down, nutrient concentrations down before they leave the site. Steve, I don't know if you can jump in here.

MR. KILBREATH: Can you rephrase your question?

MS. NEUMAN: I guess we have some concerns with subdivisions, first of all, their set-up, and they don't have the design for the whole subdivision as a public one. It's all individual septic systems that would drain one upon the other, and eventually end up in a stream through groundwater.

But I guess our subdivision realtors or people who sell the land as a future subdivision, are there any requirements on that? Because first of all, the pollution of the drainage of the septic system, and also the wells of previous landowners now are being depleted, their well water.

MR. KILBREATH: DEQ has a subdivison review program, and we review all subdivisions in the state of Montana. We look at water for

quality, quantity, and dependability when we redo our reviews, and we look at wastewater treatment from individual on through cumulative from a nondegradation impact. We look at up-gradient water quality data, and predict what impacts the septics in this subdivision will have on the down grading side of the subdivision and the users.

But individual wells and individual septics are something that's clearly allowed within Montana state law, and we're only seeing those now. We haven't hardly seen any new public water and wastewater systems associated with subdivisions in the last three years since economic adjustment has been happening in Montana. And we've been seeing a larger number of small subdivisions, four, five, sixes.

But we do that. We do look at water quality. We look at how the septics are installed, where they're installed, how they're lined up so they don't get cumulative impacts in place on down-gradient users.

What we do not look at is if this subdivision dewaters a neighboring well. That is a Department of Natural Resources concern. We look at the dependability of groundwater, the

quantity and dependability. Can you get enough out to supply the subdivision over a continuous amount of time?

We have a lot of subdivisions we limit irrigation on due to that. We just say, "You can't irrigate a lawn above 5,000 or 10,000 square feet," if that's the main consumptive use. Does that get to your question?

MS. NEUMAN: Well, yes. I guess thinking of Kathleen and serving the public, the public needs to know that these are detrimental when they start thinking about buying this piece of land, and the consequences they would face or incur when they do that, because they're buying this unknown. They have no understanding of septic systems. "Hey, they tell you this is good," and all that, and five years down the road --

MR. KILBREATH: I wouldn't argue with your conceptual idea that they're no good. I would say they are a viable option. Onsite wastewater is a viable option for treatment when you can't put in community systems, and you can't put community systems in everywhere because of the cost of infrastructure and the cost of running.

In the last legislative session, we got House Bill 28 out there, and got it passed. House Bill 28 limits the mixing zones for the drainfields to stay within the exterior boundary of the subdivision, so that when water -- groundwater exits the subdivision, it's meeting certain standards, and those standards are well within the public health standards for nitrogen, and that's -- Nitrogen or phosphorus are the two things we look at associated with septic systems.

I would contend to you that a properly operated, properly designed, properly maintained, and properly located onsite septic system is a really great thing; but you notice I put "properly" in that sentence four times.

MS. NEUMAN: That's our concern.

MR. KILBREATH: And "properly" is key. Lewis & Clark County is the only county in Montana that has an onsite septic system maintenance district in place. It took lots of gnashing of teeth and pounding of heads to get that in place. And that maintenance program guarantees that these onsite systems get looked at once every three years, or five years, and the septic tanks get pumped out, and they are maintained, so "properly

maintained" is key.

If you take -- Before this maintenance district, if you took a cross section of the Helena Valley, and you asked 5,000 people, "Do you have a septic system, do you know where it is, and do you know when you last pumped it?," one-third would say, "You bet. It's right there. It was three years ago," one-third would say, "Oh, yes. When it backed up into the basement, I had somebody look at it," and one-third would look at you with a dumb blank stare and say, "Huh?"

And I think that's a cross section of Montana, is a third, a third, and a third. So education is a huge, huge deal on this.

MS. NEUMAN: What was the House Bill again?

MR. KILBREATH: 28. It came out of the Interim Water Policy Committee as a committee bill. Steve Kilbreath with the DEQ Subdivision Program.

MS. WILLIAMS: It is quite a change to allow irrigation above the agronomic rate, right?

MR. LaVIGNE: Right.

MS. WILLIAMS: I'm trying to go back and forth between Table 1. What protections do we

have in place then for the fact that the plants aren't going to take up all those nutrients?

MR. LaVIGNE: Terry, is that A-1?

MR. CAMPBELL: A-1, B-1 category.

MR. LaVIGNE: So you already have nitrogen below five milligrams -- (inaudible) -- that's probably the biggest thing.

MR. CAMPBELL: There is a couple of health protection aspects to this whole reuse issue as well that's really important, and the reason the difference between the A-1 and the B-1 waters, A-1 waters has a filtration step in place, and the filtration criteria that we've embedded into that document protect against pathogenic viruses.

So not only are we disinfecting to kill the bacteria in those classes of waters, we're also screening out the smaller particles of viruses that are not suspectible to the disinfection steps, treating it much more like you would surface water that you're using for drinking water in order to achieve those virus removal criteria.

So those two steps put together are more protective for the public health perspective, and

then also meeting those nondegradation criteria with respect to nutrients is the other key step. And when you go through those processes, you're treating water to the point almost to where you could return it to the drinking water stream in the community, put it back into your drinking water supply without any adverse public health risk.

So these are highly, highly treated classifications, and they're going to be difficult for people to achieve. And I just wanted to throw that out.

MS. WILLIAMS: But it's still non-food crops even though --

MR. CAMPBELL: Yes, and the reason for that is because the national movement has not gone towards irrigating food crops with these types of waters. I'm Terry Campbell.

CHAIRMAN SELCH: I don't have any questions. I'm going to propose a quick ten minute break.

(Recess taken)

(Mitchell Leu not present)

CHAIRMAN SELCH: Our last speaker in our nutrient strategy briefing is Todd Teegarden.

MR. TEEGARDEN: Hello, everybody. I'm Todd Teegarden. I work in the Planning Division. I'm the Bureau Chief of the Technical and Financial Assistance Bureau, which is the wastewater SRF and technical assistance program that Paul manages, drinking water, state revolving fund, and source water protection and wetland programs.

Our program, because we do a lot of funding for wastewater systems, works very closely with Legal, Permitting, Jenny Chambers' group, TMDL's, and anything related to permits, and loads, and those things. I'm going to give a brief overview of nutrient trading, and then our policy, and where we're at.

A little background. As George introduced and Mike, we're in the final stages of developing our numeric nutrient standards for nitrogen and phosphorus in surface water. We're a headwater state, so nutrient standards will be low when compared to other states; therefore, this affordability level of technology and a bunch of the information you've heard that Mike has taken into account in these evaluations. Also we're continuing to issue TMDL's that have load limits

which impact permits, and then projects.

Nutrient trading has been around for decades, and it's a market based approach to improve water quality. It is supported by EPA, and they actually have a policy supporting trading currently, and we have the ability to incorporate that into permits now.

With TMDL load allocations coming, the Department decided to look at what's out there for trading programs, and how can Montana introduce it, research it, maybe develop a policy to allow it to be a tool to help with compliance with meeting nutrient standards.

Typically trading is conducted between a buyer and seller, or done through a centralized broker. I'm going to list a few programs in a little bit. But there is a lot of different varieties of nutrient trading programs.

We anticipate incorporating point source trades directly via the MPDES permits. Groundwater waits to be seen. It depends on again if they have a permit, or what the load is. Trades usually occur within the same watershed and stream segment, and our policy specifies that.

Pollutants that are traded world wide,

obviously nitrogen, phosphorus, but there are also flow, sediment, temperature, heavy metals, bacteria, etc.; and depending on impairments to streams, these can be an option for trades.

Currently we're allowing our trading policy to apply just to nitrogen and phosphorus, and with the idea that in the future it could be modified should there be a need for temperature or other options.

Who can participate in trading. Point sources certainly, but a big piece of the nutrient trading programs is nonpoint sources -- septic systems, and there is a few examples there of what's traditionally defined as nonpoint source programs.

Sometimes there is a third party, whether that be a local government, state government, there can be non-profit groups, NRCS type of folks, aggregators, or private people that do it as a business.

Examples of credits. This was mentioned in Paul's discussion. But certainly restoration of wetlands and riparian habitat could be a creditable trade. Land application systems, conservation tillage, cover crops. And there is a

lot more BMP's listed in our nonpoint source management plan that are eligible for trades. These are kind of some of the core ones.

Pros. To make a trade and trading program possible really needs to save point sources money or be a money creating item for someone in the watershed. With appropriate trading ratios, we try to reduce, or would plan to reduce, overall loading to surface water of the impaired parameter.

State costs can be minimized if a third party is involved. Some programs, the State is kind of a lead agency, and has FTE tied to it to run the program; others it's a conservation group or non-profits; and others that are brokers that actually facilitate trade and make money as the banker.

This last benefit is nonpoint sources need financial help with improvements to their land.

Cons. It's usually not effective until point source loads are pretty low; and obviously with the numbers we're looking at in Montana, that's the case here. Nonpoint sources sometimes are unwilling to participate due to implementation

or monitoring concerns; and we do not have the legal ability to force nonpoint source practices. There is a lot of work in Mark Bostrom's program with nonpoint sources in doing projects to reduce loads, but we don't have authority in the Water Quality Act. Claudia?

MS. MASSMAN: Right.

MR. TEEGARDEN: So therefore that can be a con. Obviously additional regulatory manpower is sometimes needed as these programs develop.

Notable programs. One of the biggest ones in the United States is in Chesapeake Bay, and they're basically a point source, nonpoint sources, and mainly for phosphorus, but they have nitrogen as well.

The Greater Miami River Basin is a big one for point source, point source, and nonpoint source, for both "N" and "P," and here's a few of the other ones. That are a few in the west. The closest I guess would probably be in the Boise River for phosphorus.

This just kind of shows an overview. The blue and green are states that have programs either at the state, or a framework established within the state. The yellow are states that

don't have programs yet. So we're hoping to be added to this list as a state with an "N" and "P" program here in the next year or so.

Again, as the numeric criteria has been going on, like George mentioned, the last ten years. A few years ago our Director asked George, and I, and a few of the Permitting and Legal folks to research a draft policy and develop it, and see what options were out there for Montana.

In 2009, we drafted a policy patterned after the State of Maryland's, looking at the other state programs that out there, such as Idaho and Oregon. But we did kind of draft the original draft from Maryland, which has got a pretty large program.

In the last year and a half, we've held subgroup meetings -- conference calls, I guess I should say. In the discussions with the Nutrient Work Group, nutrient trading has been an option. It was even in the legislation as a viable option. There is a lot of interest in nutrient trading. So the recommendation from the Nutrient Work Group was develop a subgroup that is kind of advisory, or has influence and comment on where the Department is at, and on drafting the policy.

And so we did that. That was in early 2011. We've had four meetings, I believe, conference calls. We held a nutrient trading policy workshop that spring that was well attended by 100 plus people that are interested in point source and nonpoint source watershed issues. We took in formal comments. We did get comments similar to what Mike mentioned.

We've included EPA along this path, and we solicited comments from EPA, and they commented on the draft, and then we had consultants, and we had Montana Cities and Towns actually officially comment on the plan.

We updated the draft based on those comments, and are getting ready for the final, thus why we're here to introduce this to you folks. There is a link on the Nutrient Work Group website that provides some of this information. That's the site. The link is down towards the bottom there, the nutrient trading subgroup information. And within that we have linked what other states have in terms of policies, and rules, and regulations.

The question/answers is our response to that original solicitation, the three commenters

that I mentioned. There is case examples. We have -- Part of our policy is Appendix A and B, which is what other states have done, and then how other states have actually computed nutrient trading ratios, and implemented numbers.

There is a link to the workshop with the presentations that were held on April 13th and 14th of last year, and then the draft policy that I've handed out.

Currently when we've been in discussions with Legal, we have the authority to implement the policy, and include trades and permits, but we do not have the authority to adopt the policy. So in a nutshell, I guess what that means is we need to do a rule change to reference the policy. Our intent is to have it be a simple rule reference within the Water Quality Act that refers to the policy which will be commented and adopted by you and the Board. Is that correct, Claudia?

MS. MASSMAN: Right. This group advises us, but the Board will adopt it.

MR. TEEGARDEN: Our timeline. We're going to be putting together our final comments from those public comments, and doing the final changes in the next month. This spring we hope to

bring the final version hopefully at the next meeting to WPCAC and then to the Board, this late spring and summer.

The trading future. It's to be determined how much DEQ will be involved with the trading program. Our policy is an eight page document that is kind of an outline of how we would try to facilitate, and what we would include in our review of a trading program.

It's not overly specific. It's not 100 pages long with examples and that thing. It was intended to be a framework that either watersheds or groups; or if the public asks the Department, we could hire FTE, or include and go with the DEQ being kind of the facilitator of the trading program. But currently, our thought is we will be approving the trades via our policy in the rule, but not running the program.

We certainly encourage conservation districts, local watershed groups, and the market will determine how the program will evolve.

There was five of us that have been on a core group drafting, editing, taking comments, and attending, and developing the policy; and that's myself, Claudia our legal Counsel, Jenny, Mark,

and then Eric. If anybody has questions, please feel free to call us. I didn't go into detail on policy itself, other than just kind of the framework and what it intends to be. And with that, I'm open to questions.

MR. SALLEY: Could you kind of just give a hypothetical example of how it would work without a lot of detail.

MR. TEEGARDEN: Sure. I guess an example would be a point source system that has a load limit waste load allocation at a certain amount.

And in other states they've either on a regional basis done point source to point source trading, where instead of having three facilities upgrade to a biological nutrient removal facility that costs significant chunks of money, you pool your funds, and have one facility do the upgrade and handle the load from the other ones, to come into compliance with your total waste load allocation of point sources.

Montana has a lot of nonpoint sources like Mike mentioned. In a lot of basins, point sources are significant, but nonpoint sources is certainly a big piece of the pie. So they will

have load allocations which would possibly include onsite systems, septic systems.

And we're actually having conversations with both the City of Missoula and the City of Helena on implementing a trade for the systems that they would hook up, provided there is a net benefit to the water quality. But what they would do would be they would evaluate and say, "Hey, it's cost effective to go ask farmer 'X' to improve his practice," or put a buffer in, or do any of those nonpoint source activities that can reduce loading that could potentially be lower cost than a capital cost of a project.

And I think with Montana's numbers, our trading program, I kind of think it will be a piece of the solution versus the entire solution. It's going to be hard for point sources to meet their total load allocation by just doing one nonpoint source improvement. I think it's going to have to be a package of better treatment, maybe some trading, maybe some reuse alternatives, land applying, or a combination of both.

So I guess there is a mix of point source and nonpoint source ideas and examples out there, and the policy is intended to be a

framework for how either of those, point source to point source, point source to nonpoint source, or nonpoint source to nonpoint source. Does that help answer your question?

MR. SALLEY: Yes.

MS. WILLIAMS: I have two questions, and I haven't had a chance to read this, so if it's in here, just say so.

The memo we got says that this program is to facilitate reductions in nutrients, presumably watershed wide. So how do we know -- The first question is: How do we know that the trading isn't just moving things around, but it is truly facilitating reductions?

And then the second question is: If a point source -- Will a point source ever be able to exceed its permit through a trading program, or only -- Well, are there any exemptions to meeting their permit if they do trading? Can they discharge at a higher level?

MR. TEEGARDEN: Claudia.

MS. CHAMBERS: Ratio.

MS. MASSMAN: The permit limit will be the permit limit. They can't violate the permit limit. I think we're looking at drafting -- We

don't have a lot of experience yet in drafting permits for this.

MS. CHAMBERS: I do believe that -- Jenny Chambers. Discharge permits. There will be a net water quality benefit or offset because the factors is a part of policy that the delivery and uncertainty ratios. So you look at how much load in the septic tanks for the BMP. There's factors associated with the conservative approach on how much nutrients was going to get into that surface water of concern.

And so then you provide a factor of ratio that could be a four to one, or a three to one, that you're asking the point source discharger to treat, or to take into account how their concentration of treatment is, and you're not getting a one-to-one ratio based upon hooking up or doing that BMP, and then working with an animal feeding operation, and getting the cows out of the receiving water.

So I think that uncertainty and delivery ratios will provide that factor of conservative factor associated with to ensure that there is a net water quality benefit.

And yes, the idea of the trading

component is to provide a ratio to that point source permittee to allow them to discharge at a higher concentration, but making sure that the load for the watershed stays within the requirements. Stays within.

MS. WILLIAMS: Not necessarily compliance with the --

MS. CHAMBERS: Or declines. If it stays within their waste allocation, it would most likely be a decline in the overall TMDL load allocation.

MR. MATHIEUS: It's similar to what I said earlier. A simple example would be if the overall load for a basin is 100, and in order for the municipality to potentially take on a point source, it is going to increase their load by, let's say, 20, but they're going to reduce that overall load. So it is just focusing right on the municipality because they're reducing overall load by 100 to 70, but they might increase their load by 5 percent. So how can we allow them to increase? We're only going to allow it if they reduce their watershed wide.

MS. WILLIAMS: And if the result is still within their permit.

MS. CHAMBERS: The permit will change based upon that trade component, and trade will be incorporated in the permit to provide the offset. So depending on the trade that's been developed, they'll have to demonstrate that that BMP still exists, and that they're still gaining that benefit from that trade component. So there'll be compliance and/or monitoring associated with that requirement. Hooking up a septic, they just have to demonstrate they've hooked up to that septic, and an additional septic for nonpoint source load hasn't gone to that same location. If it's a farmer, they're going to have to demonstrate annually that that farmer is continuing to implement that BMP.

MR. TEEGARDEN: And the onsite evaluation will take evaluating the impact to the resource from the groundwater, figuring out that load, and then taking out what the existing treatment capabilities are of the plant, so that there is a net water quality benefit. Like Jenny mentions, there's the uncertainty ratio and the delivery ratio, which is two ratios typically above one-to-one to guarantee that there is a net benefit, and reduce the load.

MS. CHAMBERS: Hopefully we'll have an example, too, that we can bring back to you guys prior to having the trading policy go forward to show you a real scale example of how we're trying to incorporate the trading policy into a permit, what that looks like, and what we estimate the net benefit to that watershed.

MS. NEUMAN: What are they thinking about monetary exchange? How are they basing the monetary exchange?

MR. TEEGARDEN: That will be up to the permittee or whoever the responsible party is, I believe. Again, if you have a broker or a banker type of project, then they actually do the cash transactions; but again the State, we just want to be able to facilitate the permittee or whoever is trying to reduce loads, but the monetary exchange will be up to them.

MS. WILLIAMS: It may be the cost of the project.

MR. TEEGARDEN: Absolutely. Yes.

CHAIRMAN SELCH: Thanks, Todd. We're running a little bit behind, but if you guys have any more questions, I'm sure they wouldn't mind answering them, or contact you. I appreciate that

gave our nutrient strategy update. There was some great presentations. I would like to have revisited those every so often because I forget things quickly.

Our next speaker today is Rod McNeil, and Rod has been allocated 15 minutes on here, so we'll see if he can hold us to that or not. Rod is going to talk about what he does in his free time when he's not reading 5,000 page EA's.

MR. McNEIL: Actually I only get seven and a half minutes. I'm splitting this with Amy Steinmetz. So we're going to talk about three things today. We're going to talk about interim pesticide standards development; we're going to talk about the silver standard; and then Amy is going to talk about required reporting values. We've spoken with you about these topics previously, we've gone away and done some more work, and we're back to you with some answers at this point.

Relative to the pesticide issue, we received another letter from the Department of Agriculture listing three new pesticides that they had found in our groundwater supplies around the state, and they asked us to develop standards as

there are no federal standards. Typically this process takes like three, four months, but we sort of did everything right, and managed to get this done in about two months.

So I'm going to talk to you a little bit about those pesticides. The first one is Dichlorprop-p. It was detected in Helena and Billings. It is an emergent broad leaf weed herbicide, and we use a whole lot of it here in the United States. I have here a figure of four million pounds of Dichlorprop used annually. It was up to about six million as of this morning. I looked at the numbers this morning. That's about two tablespoons for every man, woman, and child in the United States, so we really hate weeds.

About 60 percent of this is used on residential lawns, so the probable source is residential treatment of lawns. This product has no agricultural use. We've gone through -- It's classified as a toxin, and we've derived an interim human health standard of .3 milligrams per liter.

That calculation has been approved or verified by the EPA. We have a letter verifying the calculation. So this is ready to move ahead.

And when we get all of this together, we came to you previously to talk about 14 other pesticides and the calculations that we did on those last August, and we'll add these three to the list, and bring this forward as an entire package for DEQ7 in 2012.

Myclobutanil is a fungicide which was from the Billings area, and it has got a very narrow use, and it's not a very common fungicide. It's used on things like strawberries, and raspberries, and mostly berry crops. I'm not really sure who is using it, but it's in our groundwater supply now. It is also a toxin, and the standard is, the interim standard is .2 milligrams per liter. And again, it's been approved by Region 8, so we're ready to go with that one.

Fipronil is an insecticide. It is widely used. It will kill anything with six legs basically. And it's also used in turf products to just kill all the insects on your lawn. But one of the most common uses -- I was kind of surprised at this -- is tick collars for cats and dogs.

The kicker is that this is a carcinogen, and our interim human standard is .001 milligrams

per liter, so it's about two orders of magnitude lower than the other compounds that we're talking to you about. And again, the calculation has been verified by Region 8, so we're ready to go ahead with that.

So that's it for pesticides. We're going to spend a couple minutes talking about silver next. Silver is a group of one of seven compounds which in 1985 the EPA changed the classification of, and suggested an averaging period for. And last year, and for the last version of DEQ7 which we passed in 2010, we added that averaging period for six of the seven compounds.

The compound that we left out was silver because there were questions from industry about it. When you add the averaging period, you cut the standard in half. So we looked at that, and Amy's worked with the Required Reporting Values, show that we couldn't find any lab in region that could measure silver at the level that would be recommended by the new standard.

So what we've decided to do is to leave the standard as it currently is, so it will not include an averaging period, and the level will be

.374 milligrams per liter. So basically we're going to leave it as is, and not go to an averaging period, so it will be a not to exceed, single measurement, not to exceed, as far as the interpretation.

That's it for what I wanted to present. Do you have any questions on pesticides or silver?

CHAIRMAN SELCH: So in both of these cases, the human health standard is a lot more restrictive than the aquatic life, I assume.

MR. McNEIL: For?

CHAIRMAN SELCH: For the pesticides you just talked about.

MR. McNEIL: We don't have aquatic life standards. These are human health standards. The Office of Pesticide Planning is trying to develop aquatic life standards. They have not been accepted by the EPA because of differences in the methods by which the toxicology measurements are made.

So it will be supposedly this year that they reconcile the two methodologies, and we have over 100 pesticides in DEQ7 that could add aquatic life standards once the disparity is reconciled.

So there is the potential for a big

change in terms of the number of aquatic life standards that we have, and there is a big difference -- In most cases, the aquatic life standard is two to three orders of magnitude lower than the human health standard for most pesticides, because obviously it's designed to kill insects, most of them. The effects can be profound. And we'll come to the WPCAC with that list when EPA will approve them.

MS. STEINMETZ: I'm Amy Steinmetz with the Water Quality Standards Section, and I'm going to talk about what we're doing with the RRV's. And before I go into why we're revisiting this, because we've talked to you about it before, I want to go over the definition because I'm going to talk about a lot of acronyms.

An RRV is the Required Reporting Value, the detection level that must be achieved in reporting surface water, or groundwater monitoring, or compliance data to the Department unless otherwise specified in a permit approval or authorization issued by the Department. So that's the detection limit that we need to see from the labs reported to us.

And you've seen that definition in Rod's

talk before. You've also seen these first three rules. I just want to go over them briefly.

The first one is that the RRV's that we report in DEQ7 have to be based on methods that are 40 CFR 136 approved, or they could be another method approved by the Department.

That No. 2 rule there is really the first active step that we do in calculating RRV's. We go to the labs; we ask them for their detection limits for the pollutants. And I'm going to go on to No. 3, and then I'll kind of come back and talk about two and three together as I'm talking about why we're redoing these.

Those MDL's are based on studies that the labs do, running very low levels of pollutants to come up with what is the lowest level that they can detect by their methods. And we use those MDL's to calculate the RRV's. We take the MDL's that are provided to us, take the 75th percentile, and multiply that by 3.18.

Now, why are we revisiting this? During our review of the RRV's, we found some fairly significant issues with the lab data that we were using to calculate RRV's. We found some missing units, so we weren't sure exactly what units we

were in.

We also found that some of the labs didn't report what method they were actually giving us, because the first time that we went out and asked for MDL's, we asked for the most sensitive method, MDL's for the most sensitive method that the lab could do. Well, not all labs do the same methods, so we were getting some very sensitive numbers, very low numbers; we were getting other numbers that were higher.

So the RRV's that were being calculated were a little bit watered down, so that was another issue that we were finding with these RRV's.

And another one that kind of brought us to the point of deciding to go out to get these numbers again, is that we were looking at a lot of data from 2010. We're in 2012 now. We thought we might as well go out, get the updated numbers, and go from there.

So that's what we did. We went to the labs. We asked them to send us not just the lowest level this time, but to submit all of the methods, MDL's for all of the methods, for all of the approved methods for the pollutants in DEQ7.

So we then took all of that data, and we required that it be submitted electronically -- a little bit faster for us to do our calculations -- and reduced our risk for error on our part. And we required that they report units, and we required that they report which methods they were giving us the numbers for.

So with all of that data, we compiled it, we sorted by pollutant, and then method, and then we calculated RRV's by method under each pollutant. So before we only had one RRV for each pollutant. Now we have anywhere from one to five RRV's per pollutant.

So why we're here. We had to come up with some new decision criteria to decide which RRV we were going to put into DEQ7.

So Rule 4. This is the rule that's going to be applied to most of the RRV's, most of the pollutants. If one or more of the calculated RRV's is below the most restrictive numeric standard, the calculated RRV closest to 10 percent of the standard will be used as the RRV in DEQ7.

We use that 10 percent because it gives us room to see what's present below the standard. It's better for water quality assessment. If

we're doing any statistics on the data, we need to be able to see what's there below the standard.

As an example of where we would use this rule, we have ethylbenzene, which is an aromatic hydrocarbon found in gasoline. We see ethylbenzene at petroleum release sites across the state, and groundwater and surface water.

And to show how we calculate that RRV, the human health standard in surface water is the most restrictive, the most sensitive standard. That's 530 micrograms per liter. 10 percent of that is 53 milligrams per liter. We have three different methods that were reported to us, MDL's that were reported to us by the labs. You can see the RRV's there.

So we can see all of those are below the standard. We look to the one that's closest to 10 percent. They're all below 10 percent. We take the largest number, the least sensitive method, so we're looking at .7 micrograms per liter for that RRV.

The next one, we have 37 pollutants in DEQ7 where we have RRV's that are all above the most restrictive standard. So we had to come up with some way to deal with that, and hopefully get

down to a lower level, because the way that the RRV's are calculated, if we're looking at four numbers for example, one number is going to be lower, and then there is going to be a progression.

We're taking the 75th percentile, so we might be taking a number that's large enough above the smallest that it brings it up above that standard; whereas if we were looking at that lowest number, we would meet the standard.

So we looked not just at the MDL's in this case, we also looked at minimum reporting limits, and practical reporting limits, which we'll use a synonymous here; and they're similar to an RRV in the way that they're calculated. Those are what the labs use to come up with their minimum reporting limits. So it is still using the MDL -- most of the time they use the MDL's, they take a multiplier, and come up with our MRL -- or PRL.

We looked at those numbers, and some of those numbers are closer to the standard, sometimes below. An example of that is mercury. Picture old miners at a gold mine; one of the sources of mercury contamination in Montana. Here

is our calculation here. The most stringent standard is the human health standard in surface water. That's .05 micrograms per liter. 10 percent of that is .005 micrograms per liter.

We can see there are four methods that are reported. The RRV's for all of those methods are above our standard. We can't get below the standard. But if we go and look at the MRL's that are reported by the labs, all of the MRL's are below, we would look at the one that's closest to 10 percent. There is actually one that's exactly 10 percent. So we would choose that .005 micrograms per liter, and use that as our RRV.

And then this rule is consistent from what you've seen before. If none of the labs report MDL's for a compound, we would use a 10 percent rule. And an example of this -- There actually aren't very many examples of most compounds have MDL's reported to us.

Ammonium sulphate, an herbicide, the human health standard is 2,000 micrograms per liter; 10 percent is 200. And because we don't have any MDL's, no MRL's, or PRL's, we would use 200 micrograms per liter as the RRV in DEQ7.

And that's all that I have. If there

are any questions, I'd be happy to try to answer them.

CHAIRMAN SELCH: Is this going to go before the Board? Does this have to be a rule that's adopted, or is this just for your own internal use?

MS. STEINMETZ: I don't think at this point we would be revising any rules based on this since it's part of DEQ7.

MR. BUKANTIS: I think basically it probably begs the question and the context a little bit. The context is we've had several briefings about DEQ7, and I think that one meeting ago, there was an action item to go forward with DEQ7.

And then what we did is we found some more issues doing our quality assurance, if you would, taking a close look at RRV's, and some issues that we identified there. We've decided to go back to the drawing board on the RRV's to start from scratch, as Amy just talked about.

So we're holding the whole DEQ7 package back, if you would, to tighten up on the RRV's. We added these additional three pesticides that Rod talked about. And so now to take this to the

next step, we'll be coming back to you next meeting with DEQ7 again, in a tight form, with three new pesticides added, and the RRV's in a more solid shape, if you would.

CHAIRMAN SELCH: Will this list be available? Do you guys have like a spreadsheet or something like that?

MS. STEINMETZ: I have a spreadsheet, and that will be available for the public to review if requested. I don't know if we will actually post that whole list on the website, but it would definitely be available.

MR. BUKANTIS: The RRV's are part of DEQ7, but they're what I would call meditative for DEQ7, in that they're not part of the standards per se, but they are values that people are concerned about because they can influence the cost of what it takes to get to the level that we're prescribing as a detection limit.

MS. WILLIAMS: DEQ had a comment about whether the RRV's should be equally applied to groundwater and surface water. Did you mention that?

MS. STEINMETZ: I didn't mention that. We have talked about it, and I think that the

decision for this version of DEQ7 is that we are not going to split those out. There are several reasons for that, I think the two most compelling reasons that I've considered or talked to anybody about.

One is that the issue really isn't as significant as you might think. I went through DEQ7, I compared the surface water standards to the groundwater standards to see if there was a significant difference between the two. For those where there was a significant difference, I went to the RRV calculations to see if there would really be a difference in an RRV for surface water versus groundwater.

There were only eleven pollutants where there would be differences, and for some of those, there would be a cost difference. For others there wouldn't. So it's not a very significant issue as far as numbers go.

And then the other thing is I am not aware of many situations where somebody sampling groundwater would really be held to the RRV in DEQ7. Permitting has some latitude. You don't have latitude?

MS. CHAMBERS: We do. We can

demonstrate or provide another RRV at a higher level if it still demonstrates compliance with our permit limit.

MS. STEINMETZ: So you guys have the latitude. Remediation I don't think uses RRV's in DEQ7 at all, and they do a lot of groundwater monitoring.

Our bureau mostly does surface water monitoring, and the groundwater monitoring, I think it would be in situations where there would be mixing. In that case, we would want to see the lower levels anyway.

Then the only program that I'm really not sure about is drinking water. Are they held to the RRV's in DEQ7? Does anybody know? No. So it really is something that --

MS. WILLIAMS: Have you gotten back to the commenter with that kind of --

MS. STEINMETZ: We haven't yet.

MS. WILLIAMS: But you intend to.

MS. STEINMETZ: (Nods head) You haven't said anything back to them, have you, Rod? Whoever provided that comment on --

MR. McNEIL: This is Hydrometrics.

MS. STEINMETZ: Oh, you did?

MR. McNEIL: Yes. We've gotten back to them to discuss that issue.

MS. WILLIAMS: Then just real quick. Will this result in any shortage of labs being able to do what we need them to do?

MS. STEINMETZ: There are a couple of pollutants, mostly pesticides, that have really low, low standards; and the only lab in some cases that can meet those standards is the Department of Agriculture lab. So there are a couple of pollutants in that category, the pesticides where it would preclude some of the other labs from being able to do the analysis. And other than that, most of the labs can meet the standard.

And in some cases, there was only one lab that even reported, so it's hard to say. It may be that some pollutants can't be tested by some labs.

CHAIRMAN SELCH: I've dealt with that a little bit. I've asked some of the local labs, and it's not cost effective for them to be looking at this. It's so infrequently that they're testing it to get down to the levels that they need to look at. The Department of Agriculture lab is the one.

Anyone else have questions?

(No response)

CHAIRMAN SELCH: Mark, did you have a comment?

MR. BOSTRUM: No. It was covered.

CHAIRMAN SELCH: Thanks. Our next agenda item is public comment, and I don't see anyone that's not with DEQ in the audience, so I'm assuming there is no public comment.

During the break we had an informational item that came up, and Bob is going to quickly mention that.

MR. BUKANTIS: Just kind of a heads up for the council. I think it was House Bill 141, if I remember correctly, in the last legislative session directed some of the legislative committees.

The one that is of interest for this group is the Environmental Quality Council, and what EQC is going to be doing is looking at a bunch of advisory councils, including Water Pollution Control Advisory Council, and doing some sort of evaluation, looking forward to potential future legislation on whether they think the council is I guess worthwhile in terms of an asset

to the state, or should be modified, or disbanded, or whatever, but making some sort of recommendation. And it is I think really broad in scope, and that's certainly not looking particularly at the Water Pollution Control Advisory Council.

But what I want you to know, and I think you probably all saw that email that I sent to Hope Stockwell providing Hope -- who is EQC staff -- providing Hope with your emails, and Hope intends I believe to send out emails to everyone on the council inviting your attendance, if you would like to attend, to I believe it's the March 8th EQC meeting, where I think probably Mark Bostrom will be speaking for DEQ to the council or to the Environmental Quality Council regarding WPCAC's role as an advisory council to DEQ.

So I just wanted to let you know about that, so you'll probably be seeing an email invite from Hope sometime in the near future.

MR. MATHIEUS: Just for the record, it is House Bill 142. And yes, Hope is planning on sending out invitations for Council members. And just so it's clear, they're not planning on setting any specific time aside.

The Departments, various Departments that have councils that are on that agenda will come up and speak to the council; and then during public comment, what the hope is from the Chairman of the EQC is that if there is members of either the public or members of that council that would like to come up and add, then that time will be available at the March EQC meeting.

MR. BUKANTIS: Thanks, George.

MS. WILLIAMS: Just for disclosure, I'm on the Environmental Quality Council. I just want you guys to know that.

CHAIRMAN SELCH: Thanks, Bob. Our next agenda item is our agenda for our next meeting, which I think is April 20th.

MR. BUKANTIS: Yes, April 20th.

CHAIRMAN SELCH: You mentioned you're going to be coming forward with the DEQ7 package.

MR. BUKANTIS: Yes. We plan to come back again with DEQ7 as an action item. I think the only substantive change you'll see is the three pesticides, dropping of the silver. So that should be a quick, easy item because you've heard a lot about that.

And Todd was talking about coming

forward with nutrient trading policy. Jenny is going to come forward with the rule package, probably going to be pretty substantive.

MS. CHAMBERS: Yes.

CHAIRMAN SELCH: Does anyone else have any items for the next meeting?

(No response)

CHAIRMAN SELCH: If anything comes up in the interim, just forward those on, and we'll discuss them.

With that, I guess it looks like we're done. Motion to adjourn.

MR. SALLEY: So moved.

MS. WILLIAMS: Second.

(Response)

(The proceedings were concluded at 12:44 p.m.)

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C E R T I F I C A T E

STATE OF MONTANA)
: SS.
COUNTY OF LEWIS & CLARK)

I, LAURIE CRUTCHER, RPR, Court Reporter, Notary Public in and for the County of Lewis & Clark, State of Montana, do hereby certify:

That the proceedings were taken before me at the time and place herein named; that the proceedings were reported by me in shorthand and transcribed using computer-aided transcription, and that the foregoing - 119 - pages contain a true record of the proceedings to the best of my ability.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this _____ day of _____, 2012.

_____

LAURIE CRUTCHER, RPR
Court Reporter - Notary Public
My commission expires
March 9, 2016.

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